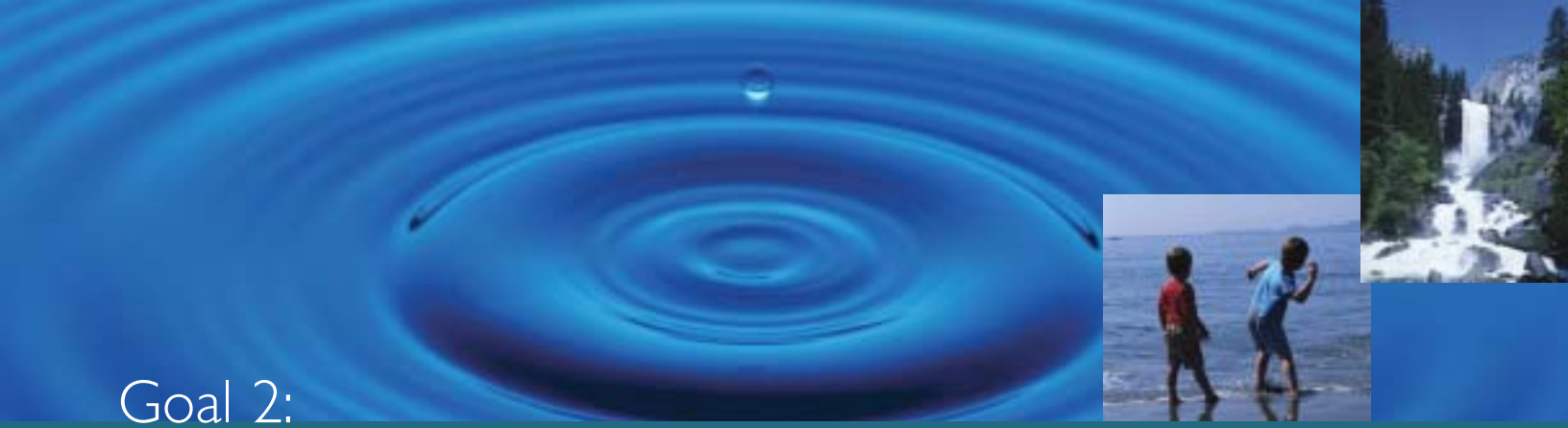


Goal 2: Clean and Safe Water

Ensure drinking water is safe. Restore and maintain oceans, watersheds, and their aquatic ecosystems to protect human health, support economic and recreational activities, and provide healthy habitat for fish, plants, and wildlife.

Progress Toward the Strategic Goal and Objectives

Over the nearly 30 years since enactment of the Clean Water and Safe Drinking Water Acts, EPA, states, tribes, and localities have worked together to make remarkable progress in improving the quality of surface waters and drinking water. EPA believes that it has sustained that progress in FY 2003. However, despite measurable improvements in the quality of water, serious water pollution and drinking water problems remain.

EPA and its partners protect human health by reducing exposure to contaminants in drinking water, in fish and shellfish, and in recreational waters. Although final FY 2003 drinking water data will not be available until January 2004, EPA expects that the gains made over the past decade will be maintained. Data reported by states to EPA to date show that the percentage of the population served by community water systems that meet all health-based drinking water standards increased from 79 percent in 1993 to 94 percent in 2002.

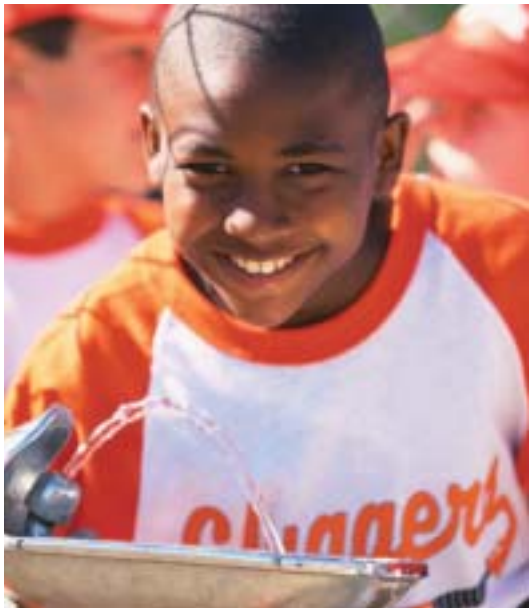
Due to improvements in the geo-referencing capabilities of the National Listing of Fish and Wildlife Advisories (NLFWA), for the first time, 13 states were able to identify specific waters where all fish are safe to eat[1]. State and local agencies also reported that beaches were open 95 percent of the beach days (the number of days in a specific beach's recreational season) during calendar year 2002. Voluntary reporting of beach monitoring information and public notification also increased to protect the public from bacterial contamination. In FY 2002, 227 agencies reported on 2,823 beaches, a substantial increase from the 159 agencies that reported on 1,021 beaches in 1997.[2]

EPA and states continue to use a watershed approach to protect and improve water quality nation-wide, including coastal waters. In FY 2002, more comprehensive state reporting enabled the Agency to report on 1,980 of the nation's 2,262 watersheds, an increase of 90 watersheds since the 2000 reporting cycle. State data reported in FY 2002 indicate that 453 watersheds had between 80 percent and 100 percent of their assessed waters meeting water quality standards, fewer than the 510 watersheds in like condition reported by states in FY 2001[3]. EPA believes that the reported degree of attainment of water quality standards within a watershed is subject to a range of variables and that the circumstances of each watershed are different. For example, states and tribes have adopted new water quality standards since FY 2000 for pollutants, such as mercury, and monitoring for these newly covered pollutants may result in additional waters not attaining standards. States are also implementing the

FY 2003 EPA guidance addressing assessment /reporting methodologies. Compliance with this new guidance may have resulted in different conclusions concerning attainment of standards, even where old and new data are comparable. Additionally, some state monitoring resources may have declined since FY 2000, leading a state to focus its more recent monitoring efforts on waters known to be impaired, thus reducing the percentage of waters in a watershed known to be attaining standards. In some watersheds, the new data may represent increased pollution loadings, resulting in additional waters not attaining standards. These factors along with others may affect the results. EPA is more closely assessing the situation in each watershed to better understand the FY 2002 monitoring data.

FY 2003 Performance

Providing drinking water that meets safe standards often requires an investment in the construction or maintenance of infrastructure. The Drinking Water State Revolving Fund (DWSRF) provides water systems with low-interest loans to make infrastructure improvements. In FY 2003, the DWSRF program achieved its performance targets by completing a cumulative total of more than 3,000 infrastructure assistance agreements from states to water systems, while systems completed more than 1,600 infrastructure improvement projects.[4]



In combination with maintaining a core program approach, drinking water protection increasingly relies on multiple barriers of protection, including preventing contamination in source waters. In FY 2003, EPA worked extensively with states and national organizations to produce a joint framework for a national vision of source water protection. The framework includes prevention program accountability and tracking measures that will help both to manage the program and evaluate results. Although FY 2003 data will not be available until January 2004, states continued working to complete high-quality baseline source water assessments for 54,000 community water systems nation-wide by identifying actual and potential sources of contamination and determining the susceptibility of drinking water sources to contamination. EPA and states have begun to use these assessments to drive risk management protection activities at the local level.

To further protect underground sources of drinking water, EPA and its state partners continued to implement the underground injection control program to ensure that waste fluids are disposed of safely. In FY 2003, EPA and its state partners continued to return Class I, II, and III underground injection control wells to compliance and to implement new regulations controlling certain types of Class V wells.

The core water programs work together in stages to achieve the dual goals of protecting human health and improving water quality on a watershed basis. For every water body, the building blocks necessary to

achieve water quality goals are the same: setting appropriate standards, monitoring, assessment, planning, implementation, and re-evaluation through more monitoring. During FY 2003, EPA reviewed and approved new or revised water quality standards for 28 states and promulgated federal standards for another state. By the end of FY 2003, a total of 23 tribes had EPA-approved water quality standards. Although the target of 30 tribes was not met, there was an improvement over last year. During the year, EPA assisted states and tribes in strengthening the scientific basis of watershed-based water quality standards by continuing to support state and tribal biological and nutrient criteria development. These criteria enable states and tribes to adopt better water quality standards that more fully protect aquatic life and protect their waters from excess nutrient levels, one of the four leading causes of water quality impairments.

To restore the nation's impaired surface waters, EPA is working with states to develop Total Maximum Daily Loads (TMDLs), which set pollutant limits for the impaired water segment. During FY 2003, 2,376 TMDLs were developed by states and 172 by EPA, bringing total TMDL output to 9,252 since 1999. While the Agency's FY 2003 performance is short of its originally projected goal of 3,400 TMDLs (state and EPA-developed), this represents an adequate pace of TMDL completion, reflecting actual state schedules for TMDL production.[5]

The National Pollutant Discharge Elimination System (NPDES) is a key mechanism to protect and restore watersheds by controlling pollutant discharges from point sources. For FY 2003, EPA and the states met the target of 84 percent of minor point sources covered by current permits. In FY 2003, EPA and states reached 84 percent of major source permittees with current permits, which continues to fall short of meeting the Agency's goal of 90 percent.[6] The principal reason for the continuing challenge of permit issuance is that states continue to face competing state priorities and the increasing complexity of permitting in a watershed context. Recognizing this ongoing challenge, in FY 2003, EPA developed and piloted the Permitting for Environmental Results initiative to address the permit backlog and focus resources on attaining the most significant environmental results (refer to *Sustained Progress in Addressing Management Issues* available at http://www.epa.gov/ocfo/finstatement/2003ar/2003ar.htm for further discussion). This effort will enable the states and EPA to achieve an environmental focus in permit issuance and develop efficiencies to meet the goals in light of limited resources. Also in FY 2003, NPDES permits implementing effluent guidelines prevented the discharge of approximately 235 million pounds of pollutants into the nation's waters, which represents a cumulative total of 2.2 billion pounds since 1999, but does not meet the commitment of 2.5 billion pounds[7]. This is due to a delay in issuing a key permit.

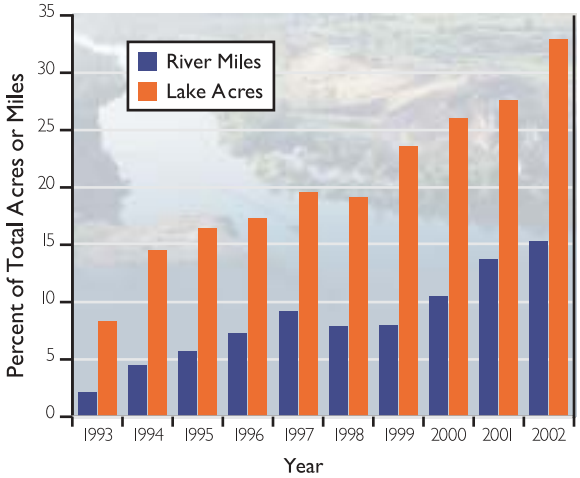
Water quality improvements frequently rely upon direct investment in maintaining or expanding infrastructure. Clean Water State Revolving Funds provide low-interest loans to help finance wastewater treatment facilities and other water quality projects. More than 10,000 projects have now been initiated since the program began in 1987, exceeding the FY 2003 cumulative target of 9,540. Through this program, funding in the amount of $115 million was also provided to help manage nonpoint-source pollution.[8]

In FY 2003, EPA established new wastewater regulations to protect surface water from animal waste generated by the 15,000 concentrated animal feeding operations in the nation. As a result, the amount of phosphorus released into

America's environment is expected to be reduced by about 50 million pounds annually, while nitrogen releases are expected to be reduced by more than 100 million pounds per year. This represents a 25 percent reduction over current levels for phosphorus and nitrogen. In addition, EPA expects that more than 2 billion pounds of sediments and about 1 million pounds of metals per year will be prevented from being discharged to the nation's waters. Other expected benefits of the new rules include fewer fish kills, fewer contaminated drinking wells, and reduced disease among livestock.[9]

EPA has taken the lead in encouraging states to establish State Water Quality Monitoring Councils, so that all monitoring groups in the state can more effectively plan and share their monitoring data. A number of water quality databases are being linked to the new Watershed Assessment, Tracking and Environmental Results System (WATERS) to allow the public to map water quality information for specific geographic areas. This will facilitate comparison and understanding of differences among state standards, monitoring activities, and assessment results; assist in management decisions on the local, state, and national levels; and give the public a more complete picture of the quality of the nation's waters.

Figure 2-1. Percentage of Lake Acres and River Miles Under Advisory, 1993-2002



Water quality trading is a market-based approach, based on voluntary partnerships at the local level, to achieve greater efficiencies to improve water quality within watersheds. Trading allows one source to meet its regulatory obligation by using pollutant reductions created by another source that has lower pollution control costs. Trading may only take place when a source reduces pollution beyond levels required by federal or state regulations. In FY 2003, EPA further promoted the use of trading by issuing the Water Quality Trading Policy.[10] The policy strengthens and broadens EPA's support for water quality trading by encouraging states and tribes to adopt trading programs, providing guidance for successful trading programs, and recommending how trading can be accomplished under the Clean Water Act and current implementing regulations. Currently 10 pilot projects are under way that will demonstrate how trading can work, explore different opportunities to implement trading, and demonstrate the environmental and economic results of trading and applied research for multiple markets for environmental benefit.

Some toxic contaminants that enter the water can move up the food chain and build to levels that make fish unsafe to eat. EPA provides guidance to states and tribes on monitoring and fish sampling and technical training to help them assess fish safety.[11] EPA recommends that states use a risk-based approach in issuing their advisories. In May 2003, 45 states reported that they now use EPA's risk-based guidance or methodologies to develop fish consumption advisories, which is a sharp increase from the level of state involvement (15) in 1999. In calendar year 2002, 15 percent of river miles and 33 percent of lake acres were under one or more advisories not only for risks to the general population but also to recreational and subsistence fishers and specific vulnerable subpopulations, such as pregnant women, nursing mothers, and children (see Figure 2-1 for information on advisories from 1993-2000).

EPA's BEACH Program supports public health and environmental protection for beach-goers and provides the public with information about the quality of their beach water. During 2003, EPA developed eBeaches to provide state and local governments a fast, easy, and secure tool to transmit information about beach water quality. Information submitted to EPA via eBeaches will then be posted on EPA's BeachWatch website, thus improving public access to information about beach conditions and health risks associated with swimming in polluted waters.

Research activities played an important role in assisting EPA to achieve objectives under this Goal in FY 2003. For example, EPA published information that illustrates approaches and requirements for two major issues related to impaired water bodies: (1) the primary factors that contribute to the likelihood of impairment; and (2) the causes of impairment. This information will assist states in deciding which water bodies to identify as impaired and in establishing approximately 42,000 TMDLs.[12] EPA's drinking water research program provided information that it needs to make scientifically sound decisions on unregulated drinking water contaminants of potential public health concern. Specifically, EPA developed improved methods for detecting the occurrence in drinking water of several pathogens on the Contaminant Candidate List and assessments of the risks associated with exposure to three waterborne pathogens of public health concern (Calicivirus, Mycobacterium avium complex, and Coxsackievirus).[13]

Assessment of Impacts of FY 2003 Performance on FY 2004 Annual Plan

The assessment of the reliability of the data underlying two measures may have an impact on the FY 2004 annual plan. The first measure is the percentage of population served by community drinking water systems that meet health-based standards. EPA and the states face a significant challenge in ensuring that the data in the Safe Drinking Water Information System (SDWIS) are accurate, timely, reliable, and complete. The Agency is currently conducting an analysis, and engaging in discussions with states, to more accurately quantify the impact of data quality problems on the estimate of the national population served by drinking water systems in compliance with health-based drinking water standards. Ongoing EPA and state efforts to improve data quality in the SDWIS already have resulted in significant improvements in data accuracy and completeness. Even as these improvements are made, SDWIS serves as the best source of national information on compliance with SDWA requirements and is a critical database for program management, the development of drinking water regulations, trends analyses, and public information.

The second measure is the number of assessed watersheds that meet water quality standards. The current compilation of surface water quality data submitted by states as required by the Clean Water Act section 305(b), which includes improved data analysis, shows that while the number of watersheds with adequate monitoring information increased, fewer watersheds than previously reported meet water quality standards. There are a variety of possible reasons for this result. Based on current assessments, EPA has revised its target to 600 watersheds meeting water quality standards in at least 80 percent of the assessed water segments by FY 2008.

Summary of Results—Goal 2

Number of Goals Met:	5
Number of Goals Not Met:	1
Number with Data Lag:	5

Annual Performance Goals (APG) and Measures

Goal 2: Clean and Safe Water

APG 14	Source Water Protection	Planned	Actual
FY 2003	39,000 community water systems (representing 75% of the nation's service population) will have completed source water assessments and 2,600 of these (representing 10% of the nation's service population) will be implementing source water protection programs. Data Lag.	10% 2,600	data available in 2004

FY 2003 Result: Agency results will be available in January 2004. The data EPA uses is new information collected from states as part of a pilot effort; data are expected by the end of November 2003. The Agency will need the intervening time to consolidate and evaluate the quality of the data.

APG 15	Safe Drinking Water	Planned	Actual
FY 2003	85% of the population served by community water systems will receive drinking water meeting health-based standards promulgated in 1998. Data Lag.	85%	data available in 2004
FY 2002	Same goal. Data Lag.	85%	data available in 2004*

FY 2003 Result: Agency results for FY 2003 will be available in January 2004. States have a 3 month (one quarter) lag in reporting end-of-fiscal-year data (i.e., by December) which the Agency compiles and evaluates in roughly 1 additional month.

* **NOTE:** Data for FY 2002 will not be available until EPA updates the data system to accept state reported data for the more recently promulgated rules accounted for in this measure (in January 2004).

APG 16	Safe Drinking Water	Planned	Actual
FY 2003	92% of the population served by community water systems will receive drinking water meeting all health-based standards, up from 83% in 1994. Data Lag.	92%	data available in 2004
FY 2002	Same goal, different targets. Goal Met.	91%	94%*
FY 2001	Same goal, different targets. Goal Met. *Performance Measures* —Population served by community drinking water systems with no violations during the year of any federally enforceable health-based standards that were in place by 1994.	91%	91%

APG I6 Safe Drinking Water *(continued)*		Planned	Actual
FY 2001 (continued)	Population served by non-community, non-transient drinking water systems with no violations during the year of any federally enforceable health-based standards that were in place by 1994.	96%	92%
FY 2000	Same goal. Goal Met.	91%	91%

FY 2003 Result: Agency results for FY 2003 will be available in January 2004. States have a 3 month (one quarter) lag in reporting end-of-fiscal-year data (i.e., by December) which the Agency compiles and evaluates in roughly 1 additional month.

* **NOTE:** EPA corrected the percent of population served by community water systems reported by states to have received drinking water meeting all health based standards in FY 2002 from 91% to 94%. This correction was based on the reporting of a violation in a single large metropolitan water system that did not actually occur in the FY 2002 reporting period. The revised number has subsequently been reported in EPA's Draft Report on the Environment.

APG I7 River/Lake Assessments for Fish Consumption		Planned	Actual
FY 2003	Reduce consumption of contaminated fish by increasing the information available to states, tribes, local governments, citizens, and decision-makers. Goal Met.		
	Performance Measures		
	—Lake acres assessed for the need for fish advisories and compilation of state-issued fish consumption advisory methodologies (cumulative).	29%	33%
	—River miles assessed for the need for fish consumption advisories and compilation of state-issued fish consumption advisory methodologies (cumulative).	15%	15%

FY 2003 Result: Each year, states continue to increase the monitoring and assessments of their waters and make determinations on the need for fish consumption advice. Voluntarily, states submit this information to EPA. All 50 states, territories, and 3 tribes provide advisory information to EPA's National Listing of Fish and Wildlife Advisories (NLFWA) database. States are also increasingly using risk-based methodologies in determining the need for fish consumption advisories. In calendar year 2002, 45 states reported using risk-based methodologies, an increase from the 15 states that reported using these methodologies in 1999. EPA provides scientific and technical information to enhance state capacity, and develops and disseminates outreach materials for health care professionals in several languages. EPA also sponsored a national forum for state, tribal, and federal agencies on risk assessments and risk communications.

APG I8 Increase Information on Beaches		Planned	Actual
FY 2003	Reduce human exposure to contaminated recreation waters by increasing the information available to the public and decision-makers. Goal Met.		
	Performance Measures		
	—Beaches for which monitoring and closure data are available to the public at http://www.epa.gov/OST/beaches/ (cumulative).	2,550	2,823
FY 2002	Same goal, different target. Goal Met.	2,354	2,445

APG 18	Increase Information on Beaches *(continued)*	Planned	Actual
FY 2001	Same goal, different target. Goal Met.	2,200	2,200
FY 2000	Same goal, different target. Goal Met.		
	Performance Measures		
	—Cumulative number of beaches for which monitoring and closure data are available at "beaches" web-page.	1,800	1,981
	—Number of digitized maps on the web-page.	150	150

FY 2003 Result: Grants authorized by the Beaches Environmental Assessment and Coastal Health Act of 2000 (BEACHES Act, PL 106-284), which are awarded to eligible Great Lakes and coastal states, increased funding for monitoring of coastal waters and public notification of closings or advisories. The public's exposure to contaminated recreational waters in FY 2003 was reduced as a result of the use of monitoring and closure data on 2,823 beaches by 227 state agencies. By 2008, better water quality standards and more information should further improve the public's ability to make informed decisions on beaches to visit.

APG 19	Clean Water State Revolving Fund: Annual Assistance	Planned	Actual
FY 2003	**900 projects funded by the Clean Water State Revolving Fund (CWSRF) will initiate operations, including 515 projects providing secondary treatment, advanced treatment, Combined Sewer Overflow (CSO) correction (treatment), and/or storm water (SW) treatment. Cumulatively, 9,540 CWSRF funded projects will have initiated operations since program inception. Goal Met.**	**9,540**	**10,085**
FY 2002	Same goal, different targets. Goal Met.	7,900	8,642
FY 2001	Same goal, different targets. Goal Met.	7,200	7,452
FY 2000	Another 2 million people will receive the benefits of secondary treatment of wastewater, for a total of 181 million people. Goal Met.	2 M	2 M

FY 2003 Result: In FY 2003, 1,443 projects were initiated to reach the cumulative target of 10,085 projects. These projects facilitated pollution control by providing secondary treatment, advanced treatment, combined sewer overflow correction (treatment), and/or stormwater treatment.

APG 20	State/Tribal Water Quality Standards	Planned	Actual
FY 2003	**Assure that states and tribes have effective, up-to-date water quality standards programs adopted in accordance with the Water Quality Standards (WQSs) regulation and the WQSs program priorities. Goal Met.**		
	Performance Measures:		
	—States with new or revised WQSs that EPA has reviewed and approved or disapproved and promulgated federal replacement standards.	**20**	**28**
	—Tribes with water quality standards adopted and approved (cumulative).	**30**	**23**

APG 20	State/Tribal Water Quality Standards *(continued)*	Planned	Actual
FY 2002	Same goal, different targets. Goal Met.	20 states 27 tribes	25 states 22 tribes
FY 2001	Same goal, different targets. Goal Not Met.	30 states 27 tribes	21 states 19 tribes
FY 2000	Same goal, different targets. Goal Not Met.	15 states 22 tribes	35 states 16 tribes

FY 2003 Result: WQSs established under the Clean Water Act establish specific environmental goals for the nation's waters. Having current, protective WQSs in place is an essential element of the national water program's water quality protection efforts. States continue to do significant work in this area. During FY 2003, EPA reviewed and approved new or revised water quality standards for 28 States and promulgated federal standards for another state. By the end of FY 2003, a total of 23 tribes had EPA-approved water quality standards. The tribal target was not met primarily because a Supreme Court decision resulted in EPA revising its tribal program authorization process, which delayed approval of new tribal standards. EPA met the performance goal overall based on the states' standards, which apply to a far larger share of the nation's rivers, lakes, and streams than do the tribal standards.

APG 21	Watershed Protection	Planned	Actual
FY 2003	**By FY 2003, water quality will improve on a watershed basis such that 600 of the nation's 2,262 watersheds will have greater than 80% of assessed waters meeting all water quality standards (WQSs), up from 500 watersheds in 1998.** Data Lag.	**600**	data available in 2005
FY 2002	Same goal, different targets. Goal Not Met.	600	453
FY 2001	Same goal, different targets. Goal Not Met.	550	510
FY 2000	Environmental improvement projects will be underway in 350 high priority watersheds as a result of implementing activities under the Clean Water Action Plan (CWAP). Goal Not Met.	350	324

FY 2003 Result: This measure relies on states' biennial reporting under Clean Water Act Section 305(b), and is not intended to be reported until the FY 2005 reporting cycle.

FY 2002 Result Available in FY 2003: FY 2002 results are reported in FY 2003 because time is needed to collect and analyze data from states' water quality assessments under 305(b) (see above). The target was not met for a variety of reasons, but among the most critical was better, more representative monitoring and assessment by many states that have established new integrated methodologies in accordance with EPA guidance. EPA's and states' abilities to achieve the expected results have been complicated by the incorporation of new WQSs for mercury and additional pollutants, and the difficulties in using applicable prior data under new assessment procedures in EPA guidance.

APG 22	NPDES Permit Requirements	Planned	Actual
FY 2003	Current national pollutant discharge elimination system (NPDES) permits reduce or eliminate discharges into the nation's waters of (1) inadequately treated discharges from municipal and industrial facilities; and (2) pollutants from urban storm water, combined sewer overflow (CSO), and concentrated animal feeding operations (CAFOs). Goal Not Met.		
	Performance Measures		
	—Major point sources are covered by current permits,	90%	84%
	—Minor point sources are covered by current permits.	84%	84%
	—Loading reductions (pounds per year) of toxic, non-conventional, and conventional pollutants from NPDES permitted facilities (POTWs, Industries, SIUs, CAFOs, SW, CSOs).	2,500 M	2,200 M
FY 2002	Same goal, different targets. Goal Not Met.		
	Performance Measures		
	—Major point sources are covered by current permits.	90%	83%
	—Minor point sources are covered by current permits.	73%	74.4%
FY 2001	Same goal, different targets. Goal Not Met.		
	Performance Measures		
	—Major point sources are covered by current permits.	89%	75%
	—Minor point sources are covered by current permits.	66%	75%

FY 2003 Result: While EPA and states met the goal for issuing minor permits, the continuing challenge of issuing major permits is due to competing priorities and the increasing complexity of permitting in a watershed context. This challenge is being addressed by the Permitting for Environmental Results initiative, designed to address the permit backlog and focus resources on attaining the most significant environmental results. The pollutant loading reductions measure was not met because there was a delay in issuing a key permit in FY 2003. This permit will be issued in 2004.

APG 23	Wastewater Treatment Facility Compliance	Planned	Actual
FY 2003	Enhance public health and environmental protection by securing the nation's critical wastewater infrastructure through support for homeland security preparedness, including vulnerability assessments, emergency operations planning, and system operator training. Goal Met.		
	Performance Measures		
	—Percent of the population served by, and the number of large and medium-sized (10,001 and larger) Publicly Owned Treatment Works (POTWs) that have taken action for homeland security preparedness.	65% 5,000	65% 5,000

FY 2003 Result: In FY 2003, 5,000 large and medium-sized POTWs took a variety of actions for homeland security preparedness, including work by state operator training centers and a series of EPA-funded training seminars and workshops. Training activities targeted the nation's largest wastewater utilities (serving 10,001 population or more.) EPA grantees, who provided the training, reported the numbers of utilities trained. EPA then used the Clean Watersheds Needs Survey and the Permits Compliance System databases to determine and report the population served by each utility.

APG 24	Homeland Security	Planned	Actual
FY 2003	Enhance public health protection by securing the Nation's critical water infrastructures through support for counter-terrorism preparedness. Data Lag.		
	Performance Measures		
	—Percent of the population and the number of community water systems—serving 100,000 or more people—that have certified the completion of the preparation or revision of their emergency response plan.	100%/463	data available in 2004

FY 2003 Result: As stated in Public Health Security and Bioterrorism Preparedness and Response Act of 2002, large community water systems must certify the completion of their emergency response plan (ERP) within six months after submitting their vulnerability assessment to EPA. Since 464 of 466 large CWSs have submitted vulnerability assessments, EPA expects that these 464 systems will submit the certification of their ERPs within the mandated 6 month period.

Prior Year Annual Performance Goals Without Corresponding FY 2003 Goals

(Actual Performance Data Available in FY 2003 and Beyond)

FY 1999	By 2003: Deliver support tools, such as watershed models, enabling resource planners to select consistent, appropriate watershed management solutions and alternative, less costly wet-weather flow control technologies. Goal Met.	Target year is FY 2003	FY 2003

FY 1999 Result Available in FY 2003: EPA developed support tools to enable resource planners to select consistent and appropriate watershed management solutions, and alternative, less costly wet-weather flow technologies. Specifically, EPA released beta software to link the urban Stormwater Management Model (SWMM) to a Geographic Information System, and additional software linking SWMM to the Office of Water's Better Assessment Science Integrating Point and Nonpoint Sources (BASINS) model, the primary EPA model supporting Total Maximum Daily Load calculations.

Notes

1. National Listing of Fish and Wildlife Advisories. Factsheet available at http://www.epa.gov/waterscience/fish/advisories/factsheet.pdf. NLFWA available at http://map1.epa.gov/.
2. National Health Protection Survey of Beaches Information Management System available at http://www.epa.gov/waterscience/beaches/; http://www.epa.gov/waterscience/beaches/grants/2003/index.html. Data for calendar year 2002 is reported for FY 2003.
3. Watershed Assessment Tracking Environmental Results System (WATERS). US EPA, Office of Water, Watershed Assessment, Tracking and Environmental Results (WATERS) Washington, DC: US EPA). Available at http://www.epa.gov/waters.
4. The EPA Office of Ground Water and Drinking Water's Drinking Water National Information Management System (DWNIMS) is accessible only on the Internet at http://www.epa.gov/safewater/dwsrf/dwnims.html.
5. For national-level information on TMDLs completed to date, see the *National Section 303(d) List Fact Sheet*, with information compiled by state and by region, on the EPA Total Maximum Daily Loads web page at http://oaspub.epa.gov/waters/national_rept.control. Annual TMDL production numbers are available through EPA's Assessment and Watershed Protection Division.
6. Permit Compliance System (PCS). US EPA, Office of Enforcement and Compliance Assurance, Permit Compliance System (database).
7. This measure is calculated using a spreadsheet maintained by the Office of Science and Technology. US EPA, Office of Science and Technology, Loadings Reduction Spread Sheet for Direct Discharges from Point Sources Subject to Effluent Guidelines (unpublished Lotus 1-2-3 spread sheet) (Washington, DC: US EPA, updated 2003)
8. Clean Water State Revolving Fund National Information Management System. US EPA, Office of Water, National Information Management System Reports: Clean Water States Revolving Fund (CWSRF). Washington, DC. Available at http://www.epa.gov/r5water/cwsrf/pdf.
9. *Concentrated Animal Feeding Operations* 68 FR 7176 (Feb., 12, 2003). Available at http://www.epa.gov/npdes/regulations/cafo_toc_fedrgstr.pdf.
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12. Detenbeck NE, Elonen CM, Taylor, DL, Anderson, LE, Jicha, TM, and Batterman SL. 2003. Effects of hydrogeomorphic region, watershed storage and mature forest on baseflow and snowmelt stream water quality in second-order Lake Superior Basin tributaries. *Freshwater Biology* 48(5):911-27. Detenbeck NE, D. Cincotta, J.M. Denver, S.K. Greenlee, and A.R. Olsen. 2003. Watershed-based survey designs. Submitted to *Environmental Monitoring and Assessment* (special issue). Detenbeck, N.E., L.A. Jagger, S.L. Stark, and M.A. Starry. 2003. WV REMAP Final Report: Watershed Classification Framework for the State of West Virginia. US EPA Report, National Health and Environmental Effects Laboratory, Mid-Continent Ecology Division, Duluth, MN. (In review).
13. Smiley JR, AE Hoyt, M Traven, H Tsunemitsu and LJ Saif, 2003. Reverse transcription-PCR assays for detection of bovine enteric caliciviruses (BEC) and analysis of the genetic relationships among BEC and human caliciviruses. *J. Clin. Microbiol.* 41(7):3089-99. Flanigan, D and M Rodgers, 2003. A method to detect viable *Helicobacter pylori* bacteria in groundwater. *Acta Hydrochim. Hydrobio.*, 31(1): 45-48.